# FARMLINE

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## A World of Debt

Killer Bees
page 8

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# PERSPECTIVES

**AN AGREEMENT IN PRINCIPLE ON A NEW U.S.-SOVIET GRAIN TRADE PACT** was announced on July 28. The 5-year accord would raise minimum Soviet grain purchases by 33%-50%. It should help assure that the U.S. remains a major Soviet grain supplier, and it may even reestablish America's role as the Soviet Union's top grain merchant—a position occupied so far this year by Argentina, with Canada in the number two spot. Since the 1980 U.S. grain embargo, the U.S. share of Soviet grain imports has slid from a high of 70%-80% to an estimated low of around 20% this year.

**The pact is scheduled to take effect on Oct. 1,** after the current agreement—now in its 7th year—expires. According to a preliminary outline, the Soviets agreed to buy a minimum of 8 million tons of U.S. grain a year, in roughly equal quantities of corn and wheat. In addition, they will buy 1 million tons of either corn or wheat, or 500,000 tons of soybeans or soybean meal. In dollars, the minimum annual purchases represent $1.3-$1.4 billion in U.S. sales at recent export prices. And, if the Soviets want, they may buy as much as 12 million tons of U.S. grain a year without consulting the U.S. government. Beyond that, the U.S. may offer—or the Soviets may request—any additional amount.

**The previous agreement,** signed in 1975, carried a 6-million-ton grain minimum, with no provision for oilseed sales. It permitted up to 8 million tons in grain purchases without consultations. Until the U.S. embargo, the Soviets took almost any amount the U.S. offered. Not so after the embargo. In fiscal 1982, Soviet purchases of U.S. wheat and corn reached almost 14 million tons, but we had offered 23 million. This year, we again offered up to 23 million tons, but the Russians have bought only around 6 million tons of U.S. grain thus far, and total shipments are unlikely to be much higher. Reasons for this year's reduced sales: signs of a bigger Soviet harvest and, possibly, a Soviet desire to hold onto a strong bargaining position in the trade negotiations with the United States.

**"The 1975 agreement was negotiated under far different conditions,"** says USDA analyst Tom Bickerton. "Then, the Soviets knew they were heading for a crop disaster, and we held most of the supplies. This year, however, they expect a relatively good grain crop, by our estimates the largest harvest in 5 years. Also, they have agreements with other suppliers guaranteeing them about 10 million tons of grain a year. In other words, they're in a stronger bargaining position today."

**So, why did the Soviets agree to a new pact with a higher minimum?** Several reasons are suggested. Even with a larger harvest, the Russians may require about 30 million tons of imported grain this year and in each of the next several years. They seem serious about plans to raise meat consumption, and USSR livestock numbers are now at record levels. To support continued expansion in livestock, they need a higher feed base, says analyst Jim Cole. U.S. grain has a reputation for consistently high quality, despite Soviet protests over wheat scab problems last year. Moreover, the U.S. can offer greater supply assurance and, typically, greater volume than other suppliers, whose harvests tend to fluctuate more than U.S. harvests. Concerns about U.S. reliability as a supplier, raised by the embargo, have apparently been satisfied by contract sanctity guarantees.

**And then there's PIK.** "They may also have been looking at our PIK program, and the impact that further U.S. acreage reductions might have on exportable supplies," speculates Cole. The Soviet Union, he says, is the world's largest grain importer, and Soviet purchases of U.S. grain can't help but play a role in U.S. farm production decisions. These decisions, in turn, not only affect available grain supplies, but they have a big impact on world grain prices.

**Impact on farm and food prices?** The agreement may add some strength to U.S. farm prices, particularly as new Soviet orders come in. Much depends on the size and timing of orders. As far as domestic food prices, the impact—given our current grain surpluses—should be minimal unless Soviet purchases significantly exceed the agreement amounts. In that case, further U.S. approval would be required.

# FARMLINE

*AGRICULTURE . . . NATURAL RESOURCES . . . RURAL DEVELOPMENT*
*Practical economic intelligence from USDA's Economic Research Service*

## FEATURES

**A World of Debt** *by Eric Van Chantfort* 4

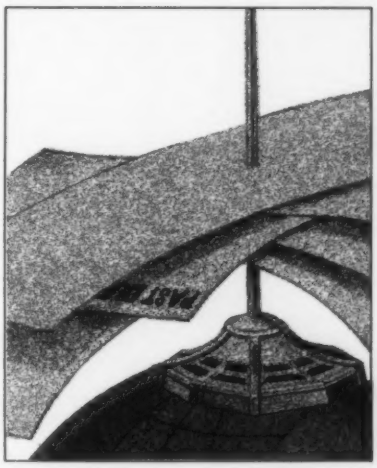
Hundreds of billions in external debts have accumulated in a few dozen developing and East European nations. They borrowed to buy farm products, oil, tools, and the technology to develop their economies. Now, many can't pay their creditors. The deteriorating debt situation has shaken the international financial community, but the real losses can probably be measured in terms of economic development and world trade, including U.S. agricultural trade.

**Killer Bees: Hype or Hazard?** *by Ellen Banker* 8

Killer bees have now reached Costa Rica, and some scientists predict they will arrive in the United States by the end of the decade—maybe sooner. What will happen when they get here? Some experts fear a public health hazard, havoc in the American beekeeping industry, and serious economic repercussions for pollinated crops. Others dismiss these threats entirely. The truth is that no one knows for sure what will happen.

**U.S. Farmers Reap Energy Savings** *by John Duncan* 12

After being staggered by soaring fuel prices in the 1970's, American farmers are enjoying a respite in which both prices and consumption have declined—a combination that pays tidy dividends in the form of lower production costs. Gasoline and diesel prices have receded from their 1981 peaks, while energy conservation on the farm is dramatically apparent in fuel consumption statistics.



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# A World of Debt

Nations that can't pay their foreign debts usually trim their imports, but they don't declare bankruptcy, and they don't go on the auction block. Instead, they ask for more credit, seek loan consolidations and extensions, miss payments, and maybe even weigh the consequences of defaulting on their loans.

In the last few years, hundreds of billions of dollars in external debts have been accumulated by a few dozen developing and East European nations—nations with limited resources for redeeming their loans. They borrowed to pay their import bills for agricultural products, oil, and the tools and machinery they need to develop their economies. Now, many find that they can't pay their creditors.

The deteriorating debt situation has put a serious damper on world trade and sent shivers through the international financial community. Last fall, fears of massive defaults on these accounts led to speculation about a chain reaction of bank failures in the United States and Europe and a possible collapse of the world monetary system.

Today, these debts to Western banks and governments, international funds, and other lenders are no lower than they were 6 months or a year ago; in some cases, they are higher. Yet, in spite of the continued growth in debt, many financial analysts are breathing easier.

"Fears of a wave of defaults are no longer taken as seriously as they were several months ago," notes USDA economist David Stallings. Stallings closely monitors international financial developments for the Economic Research Service.

"Credit markets are still very nervous," he says, "but we're seeing signs of increased stability, and perhaps improvement, in the financial situation. There are also some hopeful signs for a recovery in trade, and that includes agricultural trade, over the next few years."

**A Look on the Bright Side**

Stallings lists several encouraging developments:

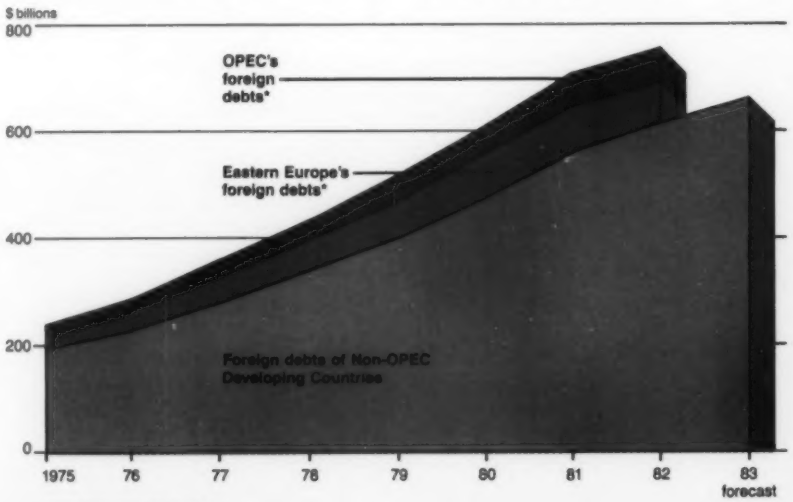
- Debt levels continued to rise last year, but the growth was much slower than it had been in previous years. In the first half of 1983, there was probably very little growth, if any, except in nations that are considered solid credit risks, like China and South Korea. Lenders have curtailed the expansion of credit without a panic-induced freeze that might have plunged financial markets into distress.

- Lenders are working with debt-burdened nations to consolidate each debtor's obligations and reschedule payments on a more realistic basis. "The steps taken by the International Monetary Fund and by commercial lenders tend to make repayments much more certain and defaults much less likely," says Stallings. For their part, debtor nations, even those far behind in payments, have pledged to honor their commitments.

- Interest rates have retreated from record-high levels, an important break for nations holding loans with floating interest rates. For instance, a 1-point drop in the U.S. prime rate saves Mexico, one of the largest debtors, about $600 million a year. Also, many analysts, including Stallings, expect that the value of the dollar will slowly decline—or at least hold steady—in the months ahead. About 90 percent of outstanding loans are denominated in dollars. The higher the foreign exchange value of the dollar, the more difficult it is for most debtor nations to accumulate dollars to pay off loans and purchase the imports they need.

- Even more promising are signs of an economic recovery in the United States, and the expectation that recovery will spread to Europe and elsewhere. Economic recovery in the industrialized nations would stimulate increased demand for the export products of debtor nations. That would mean more income, not only to meet their debt payments, but also to resume normal purchases of agricultural products and manufactured goods from the United States and other developed countries.

**Debt Growth Slows After Gross Debts More Than Triple in Six Years**




*1983 forecasts not available.

Gross debts do not include assets of debtor nations held as reserves in Western banks.

**Misplaced Concerns?**

Despite these encouraging signs, Stallings cautions that the consequences of the debt problem will remain with us for some time to come. His major concerns, however, are not the continued risks to lenders. Too often, he says, the debt problem has been discussed only in terms of the amount of money owed and the risks to financial institutions—risks that have probably been exaggerated.

"Since the early 1970's, the external debts of the developing nations, excluding OPEC, have doubled and redoubled," he says. "Accurate figures are hard to come by, but recent estimates place their total debts at more than $650 billion. About half the debt is owed to commercial lenders, and the other half to Western governments, including the United States, and international organizations, such as the World Bank and the International Monetary Fund."

This figure, he adds, doesn't include external debts owed by private sector borrowers in developing nations, nor any of the debts of Eastern Europe or OPEC. Eastern Europe's gross debts amounted to more than $80 billion last year, while several OPEC nations—especially Venezuela, Nigeria, Indonesia and Algeria—also carried large debts valued at over $60 billion.

The numbers may add up to $800 billion or more, but the total is misleading because it doesn't count the assets of debtor nations held as reserves in Western banks. OPEC reserves, for instance, balance out OPEC debts.

If debtors' reserves are subtracted from their debts, the net exposure of Western banks may amount to somewhere between $150-$200 billion, according to Stallings. Yet even this figure sheds little light on the debt problem. Debt size cannot be taken as a measure of risk, he explains. It must be weighed against the capacity to repay.

"The countries with the largest debts—Brazil, Mexico, and South Korea—also have the greatest capacity to repay their loans," he says. "Lenders may sacrifice some short-term revenue because of loan rescheduling, but we haven't seen an increase in loan write-offs."

Although several countries have temporarily halted repayments, no loans have been repudiated, he notes. "I'm not convinced that media warnings of large losses to banks and other lenders are justified. I think they'll get most, if not all, of their money back."

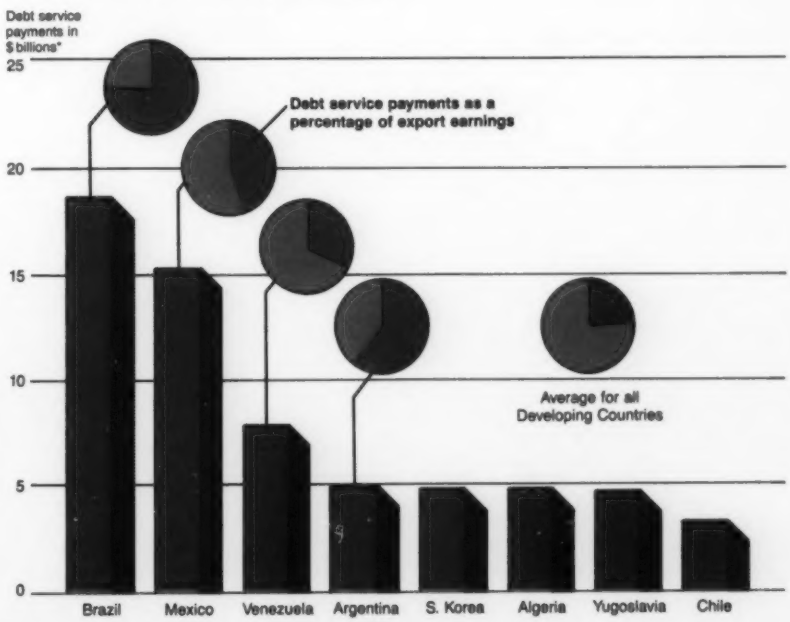
**The Consequences of Debt**

If dangers of massive defaults have been exaggerated, what then is the debt problem? Stallings contends that too little attention has probably been paid to the implications of debt for economic growth in debtor nations and the related implications for trade.

"The serious problems are concentrated in a few nations so deeply in debt that most of their income from export sales is automatically earmarked just to meet loan payments," Stallings says. This means that they have had to scale down or abandon economic development projects that depended on imports. It also means that they have had to disappoint rising expectations generated by past progress in economic development, gains in income, and improvements in the availability and variety of meats and other foods. No quick remedy is in sight.

Nor is the impact limited to the debtor nations, Stallings adds. Much of the growth in trade during the 1970's was financed by growth in credit. The United States and other developed nations were major beneficiaries, supplying capital

**Major Borrowers Struggle To Meet Debt Service Payments that Eat Up Billions a Year in Export Earnings**




*Payments on debt principal and interest for selected "large debtors."

Debt service payments and percentages of export earnings are preliminary 1982 estimates.

goods to feed economic growth in developing nations and agricultural products to feed growing populations with rising incomes.

"Many of the countries facing severe debt-service pressures have cut back on all but the most essential imports," he says. Agricultural imports may be the first to suffer because they're often considered a luxury; they don't add to potential export earnings in the way that new machinery or other capital goods might.

"Given the important role these countries played in the expansion of agricultural trade in previous years, their cutback in imports has severely affected the volume of trade and prices on the world market. Because of the appreciation of the U.S. dollar over the same period, U.S. farm exports have suffered a double setback as America captures a smaller share of a stagnating market."

Trade data help illustrate the impact. The value of U.S. agricultural exports to all developing nations, as a group, declined 16 percent from fiscal 1981 to 1982. In the same period, U.S. exports fell 32 percent to those developing nations that required debt rescheduling.

The picture is similar for Eastern Europe, which is also strapped by debt. U.S. agricultural exports to the region dropped from more than $2 billion in fiscal 1981 to less than $1 billion last year.

"The economies of the developing nations are not resilient enough to support continued economic growth without access to external resources. For that reason, the debt situation is likely to continue to dampen world trade, and especially farm trade, for the next 1 to 3 years," Stallings says.

**How Borrowing Became a Way of Life**

Debts grew steadily in the 1970's, but debt growth accelerated dramatically in the late 1970's and early 1980's. Rising oil prices were a major factor for oil importers, but oil wasn't the only cause. Some oil producers, including Mexico, Venezuela, and Nigeria, also amassed huge debts, which became apparent when oil prices unexpectedly weakened. Stallings notes that the world's largest debtor, Brazil, is an oil importer, while the second largest debtor, Mexico, is an oil exporter.

However, many other factors encouraged the expansion of debt. Growing demand in the industrialized world meant growing revenues for minerals, agricultural products, and other export goods sold by the borrowing nations. The expectations of continued growth in export demand provided an incentive to develop the capacity to keep up with that demand and to share the benefits of rising incomes, improved diets, and a better life.

"Seeking to borrow their way to self-development and higher standards of living, many nations borrowed themselves into deep dependence on outside credit," Stallings says. Low interest rates and the high inflation rates of the 1970's made borrowing a sound economic strategy.

"It was the history of the 1970's that earnings from development projects more than covered the cost of the loans," he says. Development projects in South Korea, Mexico, and Brazil paid off handsomely. As their economies diversified, they earned more foreign exchange revenue to pay off loans. Because of rampant U.S. inflation and a general weakening of the dollar, they were able to repay in cheaper dollars.

Growth in credit contributed to rapid economic development, which raised the creditworthiness of many nations. This opened new channels for borrowing from commercial lenders, who attached fewer strings to loans.

"Competition for subsidized international loans is often stronger than competition for commercial credit, and the money

## Developing Nations Still Critical

"The external debt situation in the developing world remains critical," says Stallings. "Declining prices and reduced volume for the exports of developing nations significantly reduced their outside earnings in the last 2 years. At the same time, increased borrowing on commercial terms added to their debt and significantly increased their debt-service burden."

For developing nations as a group, debt increases averaged nearly 15 percent a year between 1980 and 1982, but debt-service requirements (annual payments on principal and interest) grew at an 18-percent rate. The greater rate of increase in payments reflects the shifting structure of debt to commercial loans.

In the last year and a half, 15 non-OPEC developing nations have asked commercial lenders for debt-service relief, mostly in the form of debt rescheduling. Nine are in Latin America, five are in Africa, and one (Turkey) is in the Middle East. Some OPEC nations have also required debt rescheduling, including Venezuela, Iraq, and Nigeria.

Despite the wide distribution of debt problems, around 95 percent of the debt to be rescheduled is in Latin America, and the bulk of that is owed by just four nations—Brazil, Mexico, Venezuela, and Argentina.

Both Brazil and Argentina are behind on their rescheduled payments, and Brazil is renegotiating through the IMF. So far, Mexico has kept up with its rescheduled payments, largely on its own efforts but with some assistance from the U.S. government. Venezuela has also stayed current on its new payment schedule. In general, the nations that export oil, like Mexico and Venezuela, have suffered a smaller decline in export revenues than nations that depend on other commodities to earn foreign exchange dollars.

According to Stallings, debt-service problems in Latin America will persist through 1984. "The sharp jump in commercial financing has produced a temporary bulge in repayment obligations as a percent of export earnings," he says. "Until that burden is reduced, these countries face slower economic growth."

must usually be spent on specific projects," says Stallings. "As a result, many of the fastest growing nations looked first to private capital markets." In 1974, commercial banks held about 25 percent of the total debt liabilities of the developing world. By 1981, the share was up to 42 percent, following the second round of OPEC oil price increases. Last year, the share reached 49 percent.

Of course, commercial loans meant higher annual payments because of higher interest rates and shorter terms.

**Paying the Piper**

When recession hit the world economy beginning in late 1980 and early 1981, many indebted nations watched the demand and prices for their primary export commodities steadily weaken as industrialized nations trimmed their imports. As their earnings dropped, so did their ability to repay loans and maintain imports.

Meanwhile, interest rates jumped to record levels, and the value of the U.S. dollar hit new highs and continued to rise. As the dollar climbed and the value of their currencies dropped, developing nations found dollars more and more expensive to acquire.

Just as the industrialized nations tried to weather the recession without suffering declining standards of living, the indebted nations struggled to sustain their economic development plans. They needed additional credit just to pay the interest on past loans, so their credit needs multiplied rapidly. Many soon reached the point that, when loan payments came due, they couldn't meet them.

"It would be very easy to say that bankers had been overzealous in extending credit," says Stallings, "but it may be that their decisions were perfectly reasonable given their past experience and expectations for the future. They thought that, with an influx of new credit, they could forestall or ride out short-term difficulties that were causing a temporary repayment problem. Had the circumstances been shortlived, they might have been right."

Few analysts expected such a strong, prolonged surge in the dollar and such a long and deep recession. With perfect foresight, Stallings says, lenders could have started these nations on a realistic repayment schedule sooner and not piled new loans upon old.

Similarly, as commercial credit tightened in response to fears of defaults, the governments of the industrialized nations could have done more to help debtor nations, but their attention was focused on their own economic and budgetary problems. Although several aid plans have since been initiated, the debate continues on whether current efforts are adequate.

What now?

"If the economic recovery here and abroad is strong and long lasting, it will do a great deal to improve the debt situation," Stallings says. Volume and prices for the export products of developing nations should improve as the economies of the developed nations get back on the growth track. Credit availability should increase again as the ability to repay improves, and this would help feed renewed economic growth and trade expansion. In the meantime, he says, some additional rescheduling of loans may be necessary.

Much of the future expansion in credit will come from the commercial sector, according to Stallings. "Banks will almost certainly support larger and larger proportions of the total debt as growth in public funds for development continues to slow and countries are better able to meet external obligations." □

*[Based largely on information provided by David Stallings of the International Economics Division, Economic Research Service.]*

## Eastern Europe's Austerity Budget

The largest debt problems in Eastern Europe are in Poland, Romania, and Yugoslavia. All have taken drastic steps to reduce their debt. They've sharply curtailed their economic growth and their imports from the West, and they've drawn down their accounts in West European banks to meet debt payments.

To adjust to reduced imports of feed grains, they've revised their agricultural plans to allow for a slowdown in growth in livestock production. This means further postponing long-standing goals to put more meat on foodstore shelves.

Their primary reason for extensive borrowing in recent years had been to support economic expansion and raise domestic consumption. The result: an increase in high technology, machinery, and agricultural imports, most of which came from the West and were financed with Western credit. The gross hard currency debt of Eastern Europe reached about $88 billion in 1981, but was reduced to $81 billion last year.

USDA economist Robert Cummings reports that, for the first time in nearly a decade, Eastern Europe's imports were about balanced by exports in 1982. Excluding East Germany, which didn't provide statistics, the region's imports exceeded exports by only $325 million, down from a deficit of more than $7 billion in 1981.

Western governments, including the United States, are providing an economic aid package to help Yugoslavia, and Romania's debts have been rescheduled. Poland reached a rescheduling agreement on its commercial loans, but it stopped paying on loans guaranteed by Western governments after they declined talks following the imposition of martial law in Poland.

"A major factor in Eastern Europe's debt problems is the repayment structure of the debt," says Cummings. "Much of it is short-term debt, coming due over the last few years. The region's longer term financial situation should be strengthened by the various debt reschedulings and the ease with which centrally planned economies can slow domestic consumption and investment growth."

# Killer Bees: Hype or Hazard?

Killer bees are on their way. Ever since African bees escaped from a Brazilian laboratory 26 years ago, swarms have spread steadily northward. Wherever they go, they "Africanize" the honeybee population. Africanized bees have now reached Costa Rica, and some scientists predict they will arrive in this country by the end of the decade—possibly sooner.

What impact will these notably temperamental bees have once they get here? In the worst case, according to some scientists, economists, and beekeepers, the Africanized bee could create a public hazard, wreak havoc on the multimillion dollar American honey and beekeeping industry, and have serious economic repercussions for $10 billion worth of crops that depend on honeybee pollination.

At the other extreme, a few scientists and beekeepers dismiss these threats entirely. They contend that the bees won't survive cooler, North American temperatures, or will become more docile as they're absorbed into the resident bee population.

The truth is that no one knows for sure what will happen. But Orley Taylor, a University of Kansas entomologist who has studied the Africanized bee, contends that no known obstacle will prevent the bees from entering and permanently colonizing in the warmer parts of the United States. If so, the South American experience is important in determining the threat here.

One major concern is that monetary losses in the beekeeping industry could be staggering. Robert McDowell, an economist with USDA's Economic Research Service, estimates annual losses of $26 to $58 million for an industry that now generates about $175 million in yearly revenue.

The range of potential losses reflects two alternative projections of the U.S. area where the Africanized honeybee might survive. The first includes the area below the 32° N latitude, including parts of Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida. About 20 percent of the nation's honey is produced in these six states.

The second projection takes in parts of 11 states that have 240 or more frost-free days per year—the first six states plus California, Arizona, South Carolina, North Carolina, and Virginia. Together, these 11 states produce about 35 percent of the U.S. honey crop.

In either case, the impact of an Africanized bee population could be severe:

- The queen and package bee industry, which supplies bees for pollinating and honey production, could decline by 50 to 90 percent (income losses of $7-$14 million annually).
- Revenues from honey and beeswax production could decline by $10-$27 million annually.
- The annual operating costs of migratory beekeepers (northern beekeepers who send their hives south for the winter) could increase by $9-$13 million.

**Blame Man, Not Nature**

If science is called upon to help prevent these losses, it will only be relieving a problem man created. It was man, not nature, that brought the African bee to South America in the first place.

During the 1950's, scientists in Sao Paulo, Brazil, were carrying out breeding experiments to improve the honey-producing performance of the European honeybee. Honeybees (as opposed to some species of bumblebees) are not native to the Americas, so European bees were imported and domesticated for honey production in both North and South America. Although European bees produce honey in tropical areas of Brazil, scientists thought they could breed a better bee.

As part of their breeding research, the scientists imported African bees. Although highly aggressive, the African bees were said to produce more honey in tropical climates. Researchers hoped to genetically combine the best traits of each bee.

However, in 1957, before the experiments were completed, African queen bees with swarms escaped from the laboratory. The African bees spread rapidly, forming large wild populations and driving out or mating with the more docile European honeybees.

By the early-1960's, all the European honeybee colonies within the areas taken over by the wild African bees were essentially "Africanized." The behaviorial characteristics of all the bees were nearly indistinguishable from those of the pure African strain.

Although Africanized bees don't appear to be any more menacing—in fact, they're slightly smaller than European honeybees—the danger is in their defensive behavior.

**Faster, More Aggressive on the Defense**

Africanized bees are up to 30 times faster in reacting to an intruder, and they're up to 10 times more likely to sting than European honeybees. While all bees release special "alarm" chemicals, called pheromones, that summon other bees to defend the colony, African bees are known for the speed and intensity of their reaction.

"A victim usually can't get far enough away, fast enough, and may be stung by thousands in a matter of minutes," says David Roubik, a scientist at the Smithsonian Institution's Tropical Research Institute in Panama.

In the last 20 years, several hundred people and an unknown number of livestock and pets were killed in Brazil by such massive attacks. Enormous public outcries arose over the bees.

Thus, the Africanized honeybees have been tagged as "killer bees," a name that is not entirely justified according to many scientists. The bees' aggressive behavior is usually confined to areas near their hives. Individual Africanized bees on foraging trips are probably no more likely to sting than European honeybees. Also, like European honeybees, these bees show a wide range of colony defense behavior.

"These bees are not wanton killers," Roubik states emphatically. He explains that their defensive behavior in protecting their colonies reflects a hostile African habitat, where their hives were in constant danger from predators and the hot, dry environment. Only the most unapproachable colonies survived.

"The most serious stinging incidents usually occur just after the bees arrive in a new area," adds Orley Taylor. In time, generally about 5 years, the incidents subside, he says. "The residents adjust to the bees' behavior or the bees calm down somewhat—probably a combination of both factors."

The adjustment, however, can be difficult. In the domesticated environment, even the slightest noise—such as a lawnmower engine—can disturb Africanized bees and keep them agitated for hours or even days.

"Most Brazilan beekeepers were accustomed to having their hives near their homes," Roubik says. "The Africanized bees would move into an area and, in essence, take over the European hives without the beekeeper even realizing it. Typically, the beekeeper would go out to his hives one day, and his bees would go berserk."

**The Africanized Bee Approaches**
(Roughly 300 miles closer each year)

Compiled by Orley R. Taylor

As a result, most beekeepers were driven out of business. Others adapted to the Africanized temperaments by taking precautions and moving hives to isolated locations. After an initial decline, honey production in Brazil is reported to have increased.

Today, in the more temperate regions of southern Brazil, the bees have reportedly calmed down, although the reasons for this apparent change in behavior are not clear. It may be the cooler climate or repeated breedings with European queens.

In Venezuela, however, the Africanized bee has reportedly devastated the beekeeping industry. Honey production plunged from about 1.3 million pounds in 1975 (the year before Africanized bees arrived) to just about 200,000 pounds in 1981. And these bees show no signs of calming down, according to Thomas E. Rinderer who runs the laboratory at USDA's Bee Breeding and Stock Center in Baton Rouge, La. "This type of bee is closer to the genetic stock of Africanized bee that will enter the United States," Rinderer says.

This is precisely what worries many American beekeepers. "Beekeepers can learn to make adjustments in their handling practices," says one Arizona beekeeper who has visited his counterparts in Brazil and Venezuela. "But the public won't want to have beekeepers and their hives anywhere near them." Thus, the Africanized bees may raise a new social issue in the United States.

**More Buzz Than Bite?**

Some beekeepers and scientists are clearly stung by all the Africanized bee hype. Glen Gibson, executive secretary of the American Honey Producer's Association, says, "Scarce research funds are being frittered away on this issue, while more pressing problems, such as pesticide use, are being ignored."

Roger A. Morse, an expert on honeybees at Cornell University, contends that weather will be a limiting factor. "There is excellent data to show that the bees won't survive the winters in the northern latitudes."

Others disagree. They say the Africanized bees will arrive first in the South where they can easily survive the mild winters. If the South American experience is any indication, the European bee colonies will quickly become Africanized.

"In no time, Africanized bees—both colonies and inseminated queens—will be hauled from the South all over the country," says one large commercial beekeeper. "No one will have to worry about the bees surviving northern winters because each spring new ones will be shipped up north."

Even if their spread were confined to the South, that's where the bulk of the bee breeding industry is located.

Nationwide, some 200,000 "hobby" beekeepers (who have 25 colonies or less) could be affected. But, the more serious impact could be on the 10,000 part-time beekeepers, who may have a few hundred bee colonies each, and the large-scale operators, who may have a few thousand colonies. Together, part-time and commercial beekeepers raise bees for queen production, the package bee industry, honey production, and crop pollination.

**More Questions Than Answers**

"The truth is, we know very little about the pollinating behavior of the Africanized honeybee," Roubik says. In studies done in French Guiana, Roubik found that the Africanized bee has displaced native pollinators. "We don't know whether the Africanized bees will perform the same pollinating functions in the United States that native pollinators and domesticated European bees carry out."

At stake in the United States are at least 100 fruits, vegetables, and other economically important crops valued at around $5-$6 billion by economist McDowell. An additional $5 billion worth of crops are produced from bee-pollinated seed. Even if the Africanized bee is an excellent pollinator, recent data from Venezuela indicate that it is an inferior honey producer in the South American areas that are climatically comparable to commercial honey areas in the United States. Researchers are still examining this issue.

Most scientists and beekeepers agree that we should learn as much as possible from the South American experience. In Panama, Roubik is studying pollinating behavior, tracking the bees' persistent progress and ecological impact, and working to help beekeepers and the general public adapt to the bee.

Rinderer and his colleagues at USDA's bee laboratory have been studying the bees in Venezuela, and now in Argentina. They pay special attention to genetics, with the aim of breeding and introducing special genetic stocks to temper the undesirable characteristics.

"There is no way we can prevent the Africanized bees from coming," Rinderer contends, a sentiment shared by Roubik and Taylor who stress that this bee is one of the most successful colonizers on earth.

"Our goal is to find out how we can best live with them and provide a smooth transition for the U.S. beekeeping industry," Rinderer says, noting that research on the Africanized bee is a low-cost insurance policy. "If I'm wrong and the bee is no problem, we still have learned a lot about bee breeding, genetics, and behavior. But, if the critics are wrong and we do nothing, we could be in for some very serious trouble."□

[*Based on information from numerous sources, including Robert McDowell of the Natural Resource Economics Division, Economic Research Service; USDA scientist Thomas Rinderer of the Bee Breeding and Stock Center Laboratory in Baton Rouge, La.; and Madeline Jacobs of the Smithsonian News Service.*]

# AGRICULTURAL ROUNDUP

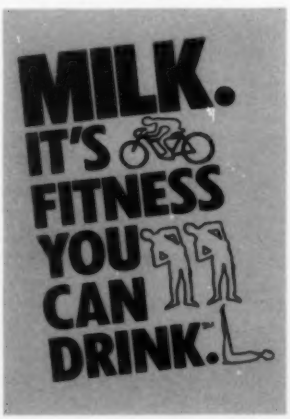
## Selling By Generics

What do eggs, milk, and orange juice have in common? They are all examples of U.S. farm products that are promoted through generic advertising—a sales pitch without a brand name.

The messages are sponsored by producer groups seeking to boost sales of a type of food rather than an individual company's product. According to economist Rosanna Mentzer Morrison of USDA's Economic Research Service and Walter Armbruster of the Farm Foundation, millions of advertising dollars are being spent to reach consumers through generic promotions.

One measure of the impact of these television, radio, and print media campaigns may be the familiarity of such generic slogans as: "The incredible, edible egg"; "Milk—it's fitness you can drink"; and "A day without orange juice is like a day without sunshine."

"Because producers of a basic agricultural product cannot easily convince consumers to choose one egg or orange over another, they use generic advertising to expand total demand for the product and, hopefully, their own sales as well," Morrison says.




Morrison and Armbruster note that generic ads may be used to counter competition from other products (milk versus soft drinks), to increase public awareness of lesser known foods such as avocados, to alter negative public perceptions about nutritional value or calorie content, or to introduce new product uses. "Orange juice—it's not just for breakfast anymore" urges consumers to keep orange juice in mind throughout the day.

Compared with total 1982 outlays of $3.6 billion for food and beverage media advertising, the generic share is very small—only about 2 percent—and it even declined a few tenths of a percent since 1972. But the reason seems to have more to do with huge increases in brand-name advertising budgets than with lack of faith in the generic message.

In fact, U.S. commodity groups spent about $84 million last year on generic advertising in consumer-targeted media, up from only $28 million 10 years earlier. Three-fourths of the spending went to promote milk, other dairy products, and fruits and juices. U.S. agricultural commodity associations also sponsored generic promotions for red meats, poultry, vegetables, rice, nuts, seafood, liquor, cotton, and wool.

These promotions were aimed at consumers, but consumers aren't the only audience for generic advertising. For example, the California Avocado Commission spent less than half of its $3.9 million promotion budget on consumer media in 1982.

"Commodity groups also offer discounts to retailers, place advertisements in trade magazines, and sponsor trade shows and contests," Morrison notes. A pork industry group, for instance, is trying to convince the fast food industry to add pork to the menu, while dozens of U.S. commodity groups use generic advertising as part of their effort to expand overseas markets.

About 85 percent of all generic advertising and promotion is paid for through producer agreements under various federal and state programs. Once these agreements are reached, usually based on a vote by producers, participation is mandatory so that all producers who are likely to benefit are required to contribute. Many programs, however, allow producers to request refunds. Producer groups also pool their money for research and nutrition education under these programs.

How effective is generic advertising? The evaluation is incomplete, but Morrison and Armbruster do point to several studies on specific generic promotions. A 1980 study conducted for the United Dairy Industry Association evaluated the effectiveness of generic fluid milk advertising expenditures in ten U.S. milk marketing areas. It found that dairy farmers received an average net return of $2.20 for each dollar spent on generic advertising.

An earlier USDA study showed similar results for milk advertising, and Florida Department of Citrus studies have indicated a favorable return on generic media advertising and coupon promotions for citrus products.

The effectiveness of generic promotions may depend on timing, the supply of the product, prices of substitute products, and several other factors, say the economists. Questions also remain about the costs and benefits to consumers, who may learn about new products, new product uses, and nutritional content through generic advertising but may also have to foot the bill through higher product cost—especially if producers are unable to expand the supply to meet greater demand generated by the ads.

## Housing the Rural Elderly

The twilight years may seem a little gloomy for some elderly Americans. Retirement incomes may not cover rising living expenses, and even the costs of decent housing—owning it, fixing it, heating it, or renting it—can be out of reach.

While these concerns are not confined to rural or elderly Americans, the rural elderly are far more likely to face housing problems than their urban or working age counterparts.

Income surfaces as a major problem. Twenty-nine percent of the elderly households in rural America had incomes below the poverty level in 1979. This compares with 10 percent for nonelderly rural households.

Translated from dollars into houses, can the rural elderly afford to live in their homes or apartments? Affordability is subjective. Using the standard applied by most savings and loan and mortgage institutions, an individual should spend a maximum of 30 percent of income on housing. On this basis, the answer would have to be that many rural elderly cannot afford it.

Housing cost data for 1979 indicate that 20 percent of rural elderly homeowners and almost half the renters spent more than 30 percent of their incomes on housing.

The quality of housing brings up another area of concern. In Commerce Department housing classifications, "inadequate" housing is determined by insufficient or nonexistent plumbing, kitchen, or sanitation facilities as well as inadequate heat and maintenance or structural defects. Twelve percent of the rural elderly were found to be living in this category of housing, compared with only 4 percent of the urban elderly.

# U.S. Farmers Reap Energy Savings

After being staggered by soaring fuel prices in the 1970's, American farmers are enjoying a respite in which both prices and consumption have declined—a combination that pays tidy dividends in the form of lower production costs.

Thanks to the oil glut, prices for the two major farm fuels, diesel and gasoline, have receded from their 1981 peaks. Gasoline prices fell from an average $1.29 per gallon bulk in 1981 to $1.23 per gallon last year, while diesel prices fell from $1.16 to $1.11. This year's prices are expected to average still lower.

In contrast, farm prices for electricity rose from 5.3 cents per kilowatt hour in 1981 to 6.3 cents last year, while LP gas prices gained slightly. Prices for natural gas—a relatively minor source of on-farm energy—jumped from $3.24 per thousand cubic feet to $3.90, largely a result of continued deregulation. These prices are climbing further this year.

Yet even though prices for electricity, LP gas, and natural gas have continued to rise, diesel fuel and gasoline together account for about two-thirds of farmers' total expenditures on energy. This means that, overall, the energy used for farm production is significantly cheaper than it was 2 years ago.

The good news for American farmers comes at the expense of OPEC and other oil exporting nations. OPEC, particularly, has seen once-lofty profits drown in flood of oversupply after the 60-percent oil price increase of 1979. Higher crude oil prices encouraged energy conservation and contributed to a worldwide recession which further reduced demand for petroleum products.

The response of U.S. farmers to the 1979 OPEC price increase is evident in their 10-percent reduction in energy use between 1978 and 1980. This marked the first major decline in farm energy use since World War II.

Relatively stable farm production between 1978 and 1980 helped make this decline possible, but fuel price hikes also

prodded farmers to accelerate their drive toward greater fuel efficiency. One sign was the increasing popularity of minimum-till cultivation, which conserves fuel by reducing the number of runs through a field by heavy equipment.

**Diesel-Powered Conservation**

Another contributor to fuel conservation was the continuing shift to diesel-powered engines, which are about 25 percent more efficient than gasoline engines. In 1974, most farm equipment ran on gasoline. Farmers used about 3.7 billion gallons of gasoline and only 2.6 billion gallons of diesel fuel.

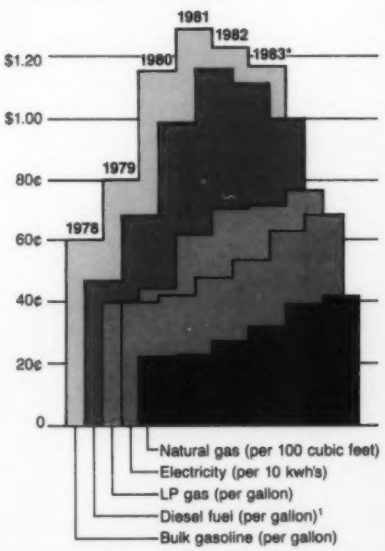
By 1980, however, the situation had changed: 3.2 billion gallons of diesel fuel were used on farms, compared with 2.9 billion gallons of gasoline. Last year, both figures were down, as farmers used 3.0 billion gallons of diesel fuel and 2.4 billion of gasoline.

*This marked the first major decline in farm energy use since World War II.*

The result of these energy-saving measures was a 17-percent drop in energy use per unit of agricultural output from 1974 to 1980. In other words, less energy was expended to produce each bushel of wheat, bale of cotton, and pound of meat.

This year's huge acreage reductions will mean some backtracking on that progress because farmers will not achieve the maximum production potential of their energy use. However, further gains in farm production efficiency based on energy are expected through the 1980's, even if the rates aren't as dramatic as they were in the 1970's.

**Gasoline and Diesel Fuel Prices Decline from 1981 Highs**




¹Excludes excise taxes.

*1983 projected.

While overall energy use in agriculture dropped between 1978 and 1980, the savings all came directly from the farm side. Partially offsetting farmers' 10-percent reduction in direct energy use was an increase in indirect energy use in agriculture, primarily for the manufacture of farm inputs. Minimum tillage, for example, requires less tractor fuel, but more petroleum-based chemicals to fight weeds and insect pests.

In essence, farmers have substituted pesticides and, to some extent, fertilizers for relatively more expensive fuel. Also, farmers have turned increasingly to off-farm facilities for crop drying, thus shifting—not eliminating—energy consumption for this function.

On balance, total agricultural energy consumption—direct and indirect uses combined—fell 2 percent from 1978 to 1980. This compares with a 7-percent increase in consumption from 1974 to 1978.

On the farm, energy conservation is dramatically apparent in fuel consumption statistics. In 1978, farmers used 6.8 billion gallons of gasoline and diesel fuel combined. By 1982, they used only 5.4 billion gallons. Direct energy use on the farm is expected to decline further during this decade. This year, USDA projects farm use at only 4.6 to 4.9 billion gallons, but the figure reflects PIK and the other acreage reduction programs along with continued conservation.

**Fuel Prices Throttle Down**

Agriculture isn't the only area of the economy to show marked decreases in fuel consumption. Stung by soaring energy costs, Americans sought new ways to get the most out of their energy dollars. Meanwhile, the worldwide recession triggered a sharp drop in fuel demand as industrial production slowed down.

OPEC nations, many of which had overextended their financial resources in anticipation of further oil-based prosperity, suddenly found very sluggish world markets for their swelling supplies.

*Farm energy conservation is dramatically apparent in fuel consumption statistics.*

In mid-1981, gasoline and diesel prices began to follow the decline in consumption. By April 1982, farm gasoline prices were 12 percent below the spring 1981 peak. Although prices began creeping up soon afterward, the persistent oversupply of crude oil—and the inability of OPEC members to control production—forced prices down again early in 1983.

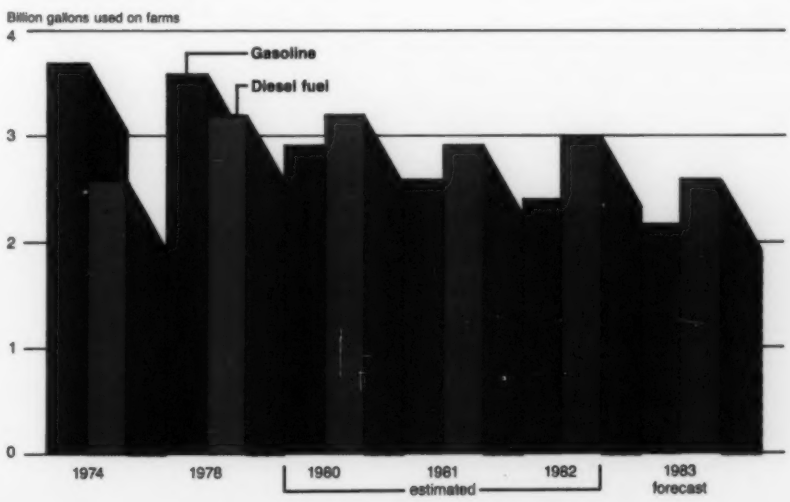
Today, production ceilings of OPEC nations are being reduced from an aggregate of 18.8 million barrels a day to 17.5 million, a reduction of nearly 60 percent from the 1973 limit of 31 million barrels a day. The OPEC benchmark crude oil price has been reduced from $34 a barrel to $29. Further cuts by non-OPEC members may force the price even lower.

One result is that bulk gasoline prices may average only around $1.17 cents a gallon this year (down from last year's $1.23) even with the 5-cent increase in the federal excise tax this past spring. Diesel fuel prices may average as low as $1 a gallon, down 11 cents from 1982.

While it's difficult to predict volatile fuel prices into the future, indications are that they won't stay down for too long. If the recovery from the recession is robust, demand will increase and world oil supplies should tighten up again, forcing prices higher. On the other hand, chances are very remote for a repeat of the dramatic oil price shocks of the 1970's. □

[*Written by energy analyst John Duncan, an economist with the Natural Resource Economics Division, Economic Research Service.*]

**Diesel Overtakes Gasoline as the Major Farm Fuel, But Both Fuels Show Conservation Trend**



# REPORTS IN THE NEWS

## Selling Abroad: EC Markets

The European Community remains the largest customer for U.S. agricultural exports, but it has also been one of the slowest growing markets since 1975. How will U.S. exports fare during the next few years when the European Community (EC) modifies its Common Agricultural Policy and possibly adds to its membership?

Animal feedstuffs—half of them soybeans—account for two-thirds of U.S. agricultural exports to the EC. The United States should continue as the EC's predominant supplier of soybeans, sunflowerseed, corn gluten feed, peanuts, citrus pulp, and some animal products, and should remain among the two principal suppliers of soybean meal and corn. Unmanufactured tobacco exports to the EC, already declining, may fall below 20 percent of the market.

The U.S. share of the EC wheat import market should range between 10 and 25 percent, depending on demand, through 1985. The United States should also continue to supply about half of the EC's rough and semimilled rice, one-tenth of its fully milled rice, and should remain among the three leading EC cotton suppliers.

However, EC import barriers will sharply curtail sales of U.S. meats, most feed grains, dairy products, many processed foods, and tobacco products. Enlargement of the EC (Greece joined in 1981, and Spain and Portugal expect to join in the mid-1980's) may mean a decline in the U.S. market share of a number of commodities, including fruit, vegetable, and nut exports. EC policies favoring EC producers and many Mediterranean and developing country suppliers will also continue to affect U.S. market shares adversely.

***The EC Market for U.S. Agricultural Exports: A Share Analysis*** *by Harold A. McNitt. (Published March 1983; 82 pages of text and tables; GPO Stock No. 001-000-04326-9; $5.00.)*

## Selling Abroad: OPEC Markets

U.S. farm products are putting in a disappointing sales performance in the OPEC nations of North Africa and the Middle East. The U.S. share of their total agricultural imports dropped from 22 percent in 1974 to only 6 percent last year.

The eight nations of the region represent a large and fast growing market—a market that imported more than $21 billion worth of agricultural products in 1982, up from only $2 billion worth in 1973.

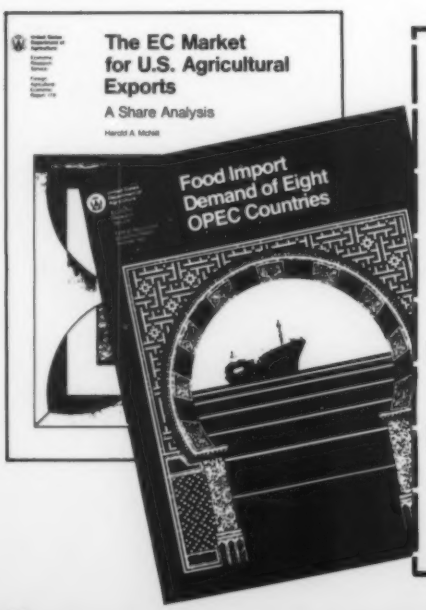
Opportunities for increased sales may be greatest for such commodities as dairy products, apples and citrus fruit, tobacco, canned goods such as tomato paste, and feed grains. Judging from the past, however, U.S. exporters may not get a big share of trade growth. The United States is an important supplier to the region with agricultural sales valued at well over $1 billion, but U.S. exporters are losing ground to other sellers.

The reasons are many, including political troubles, especially in relation to Iran and Libya; U.S. laws that may discourage market exploration; failure to match competitors' products in price and uniform quality; and U.S. export emphasis on a few bulk commodities that once dominated world trade.

Another important obstacle for U.S. firms is a serious information gap about the size, organization, and potential of this market. The report, *Food Import Demand of Eight OPEC Countries*, attempts to fill that gap by examining the North Africa-Middle East OPEC market, commodity by commodity, country by country.

Trade projections are included for each of the eight countries (Saudi Arabia, Iran, Iraq, Algeria, Libya, Kuwait, United Arab Emirates, and Qatar).

***Food Import Demand of Eight OPEC Countries*** *by Coyle, Burfisher, Parker, and others. (Published June 1983; 112 pages of text and tables; GPO Stock No. 001-000-04336-6; $5.00.)*

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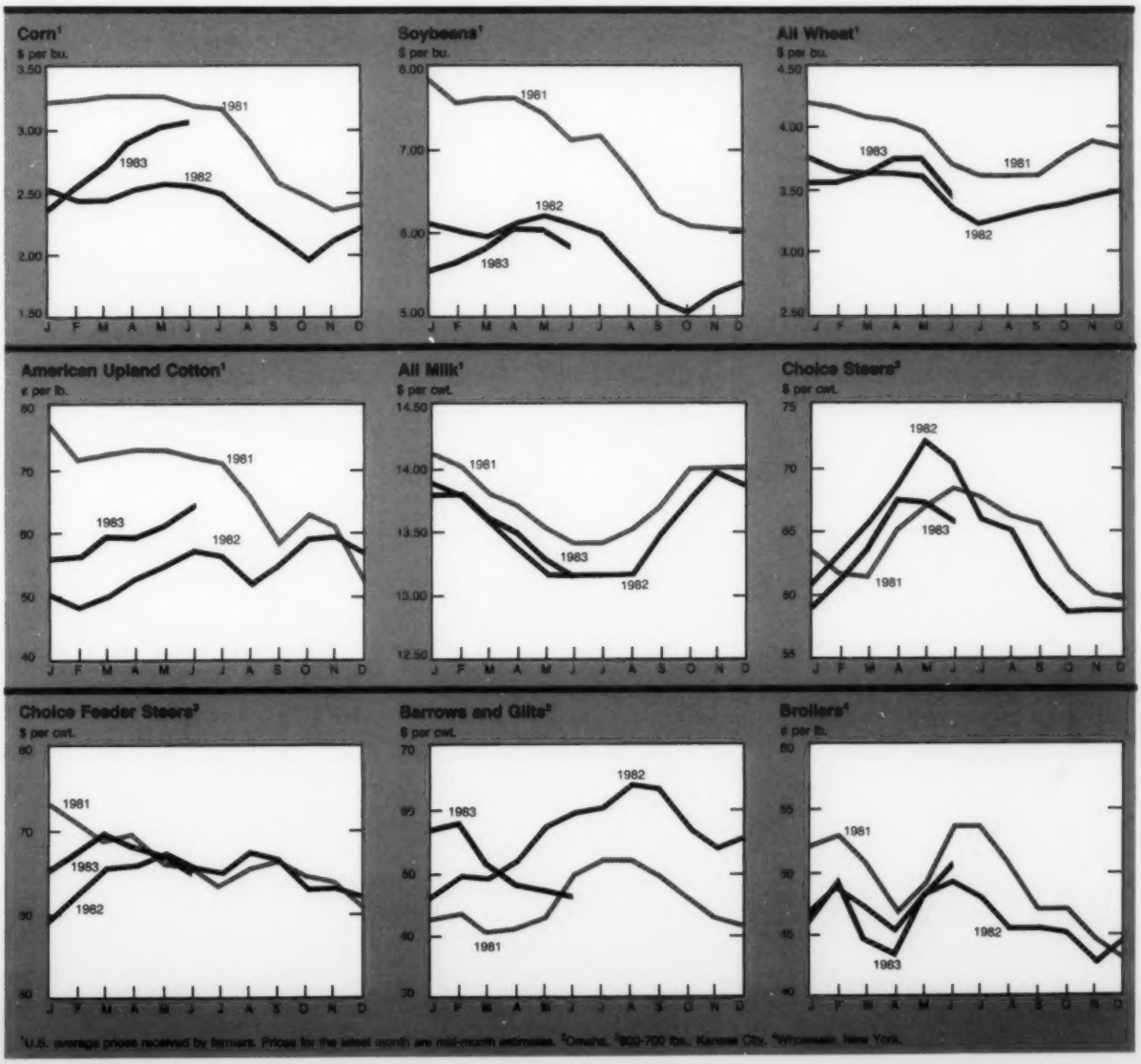
# FARMLINE TRENDS

## Monthly Price Monitor

USDA's index of farm prices dropped about 2% in June after rising for 5 months in a row. Soybean and wheat prices declined from May, while corn and cotton were up slightly. Only soybean prices remained below year-earlier levels. For livestock, all except broiler prices dropped in June, and all except broilers were below year-earlier levels. Barrows and gilts were down nearly $13 per cwt compared with June 1982, while choice steers were down more than $4. Broiler prices went over 50 cents per pound for the first time since August 1981.




[1]U.S. average prices received by farmers. Prices for the latest month are mid-month estimates. [2]Omaha. [3]900-700 lbs., Kansas City. [4]Wholesale, New York.

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